

WHAT IS CLAIMED IS:

1. A solder supplying method for forming solder coating on a metal film through positioning a substrate having the metal film on a surface with the surface facing up in a liquid which is heated to be hotter than a melting point of solder and dropping
5 solder fine particles made of the solder being melted on the substrate in the liquid.

2. The solder supplying method according to claim 1, wherein the solder fine particles, which are dropped and come in contact with the metal film or the solder coating, are kept in that state for a certain time until solder wet is caused.

3. The solder supplying method according to claim 1 or claim 2, wherein the solder fine particles to be dropped on the substrate are limited to the ones whose falling speed is within a specific range.

4. A solder bump forming method for forming a solder bump on a pad electrode through: positioning a substrate having the pad electrode on a surface with the surface facing up in a liquid which is heated to be hotter than a melting point of solder;
5 supplying solder fine particles made of the solder being melted into the liquid; and dropping the solder fine particles on the substrate.

5. The solder bump forming method according to claim 4, wherein the solder fine particles are formed by breaking in the

liquid the solder being melted.

6. The solder bump forming method according to claim 4 or claim 5, wherein flux is contained in the liquid.

7. The solder bump forming method according to claim 4 or claim 5, wherein an organic acid is contained in the liquid or the liquid is made of the organic acid, and the organic acid has a reduction effect which removes an oxide on a metal surface.

8. The solder bump forming method according to any one of claims 4 to 7, wherein a diameter of the solder fine particle is smaller than a shortest distance between peripheral edges of the pad electrodes adjacent to each other.

9. A solder bump forming apparatus comprising: a liquid tank for enclosing a liquid heated to be hotter than a melting point of solder and a substrate which has pad electrodes on a surface and is positioned in the liquid with the surface facing
5 up; and a solder fine particle supplying means for supplying solder fine particles made of the solder being melted into the liquid and dropping the solder fine particles on the substrate.

10. The solder bump forming apparatus according to claim 9, wherein the solder fine particle supplying means forms the solder fine particles through breaking in the liquid the solder being melted.

11. The solder bump forming apparatus according to claim 10, wherein:

the liquid tank comprises a first liquid tank for enclosing the substrate and the liquid and a second liquid tank
5 for enclosing the liquid and the solder being melted and sunk in the liquid;

upper sections of the first liquid tank and the second liquid tank communicate with each other while bottom sections do not; and

10 the solder fine particle supplying means forms the solder fine particles through breaking the solder being melted in the second liquid tank and supplies the solder fine particles to the first liquid tank from the upper section of the second liquid tank.

12. The solder bump forming apparatus according to claim 10, wherein:

the liquid tank comprises a first liquid tank for enclosing the substrate, the liquid and the solder being melted
5 and sunk in the liquid, and a second liquid tank for enclosing the liquid and the solder being melted and sunk in the liquid;

upper sections and bottom sections of the first liquid tank and the second liquid tank communicate with each other; and

10 the solder fine particle supplying means forms the solder fine particles through breaking the solder being melted in the first liquid tank and the second liquid tank, supplies the

solder fine particles to the first liquid tank from the upper section of the second liquid tank, and reutilizes the solder
15 fine particles sunk in a bottom of the first liquid tank as the solder being melted.

13. The solder bump forming apparatus according to any one of claims 9 to 12, wherein flux is contained in the liquid.

14. The solder bump forming apparatus according to any one of claims 9 to 11, wherein an organic acid or flux is contained in the liquid or the liquid is made of the organic acid, and the organic acid or the flux has a reduction effect
5 which removes an oxide on a metal surface.

15. The solder bump forming apparatus according to any one of claims 9 to 14, wherein a diameter of the solder fine particle is smaller than a shortest distance between peripheral edges of the pad electrodes adjacent to each other.